

WHAT IS CLAIMED IS:

- 1 1. A sintered body, comprising:
2 sintered metal particles forming a sintered structure and having a
3 maximum particle size of 100 μm or smaller; and
4 carbon being dispersed in the sintered structure in an amount of 0.05
5 to 1.0% by mass based on a total mass of the sintered body.
- 1 2. A sintered body according to Claim 1, wherein the sintered body has
2 been heat-treated.
- 1 3. A sintered body according to Claim 1, wherein the sintered body
2 forms at least teeth of a sprocket of a silent chain.
- 1 4. A sintered body according to Claim 1, wherein the sintered body is a
2 high-strength part of an internal combustion engine.
- 1 5. A sintered body having a sintered structure derived from a metal
2 powder and containing carbon dispersed in the sintered structure in an amount
3 of 0.05 to 1.0% by mass based on a total mass of the sintered body, the metal
4 powder having a particle size of 75 μm or smaller.
- 1 6. A sintered body according to Claim 5, wherein the sintered body has
2 been heat-treated.
- 1 7. A sintered body according to Claim 5, wherein the sintered body
2 forms at least teeth of a sprocket of a silent chain.
- 1 8. A sintered body according to Claim 5, wherein the sintered body is a
2 high-strength part of an internal combustion engine.

1 9. A sintered body produced from a metal powder mixture, the metal
2 powder mixture including a metal powder having a particle size of 75 μm or
3 smaller, a graphite powder in an amount 0.1 to 1.0% by mass and a powder
4 lubricant in an amount of 0.05 to 0.80% by mass based on a total mass of the
5 metal powder mixture.

1 10. A sintered body according to Claim 9, wherein the sintered body has
2 been heat-treated.

1 11. A sintered body according to Claim 9, wherein the sintered body
2 forms at least teeth of a sprocket of a silent chain.

1 12. A sintered body according to Claim 9, wherein the sintered body is a
2 high-strength part of an internal combustion engine.

1 13. A production method of a sintered body, comprising:
2 preparing a metal powder mixture, the metal powder mixture
3 including a fine metal powder having a particle size of 75 μm or smaller, a
4 graphite powder in an amount of 0.1 to 1.0% by mass and a powder lubricant
5 in an amount of 0.05 to 0.80% by mass based on a total mass of the metal
6 powder mixture;
7 compacting the metal powder mixture to provide a green compact; and
8 sintering the green compact.

1 14. A production method according to Claim 13, wherein the sintered
2 body comprises sintered metal particles forming a sintered structure and having
3 a maximum particle size of 100 μm or smaller.

1 15. A production method according to Claim 13, wherein the sintered
2 body contains carbon in an amount of 0.05 to 1.0% by mass based on a total
3 mass of the sintered body.

- 1 16. A production method according to Claim 13, wherein the metal
2 powder is a blend of an iron-based powder and an alloying metal powder.
- 1 17. A production method according to Claim 13, wherein said preparing
2 includes granulating the metal powder to form primary particles having a
3 particle size of 75 μm or smaller into secondary particles having a particle size
4 of 180 μm or smaller.
- 1 18. A production method according to Claim 13, wherein the metal
2 powder mixture is compacted while being heated to a temperature of 100°C or
3 higher.
- 1 19. A production method according to Claim 18, wherein said compacting
2 includes preheating a die to a temperature of 120°C or higher, and then,
3 compressing the metal powder mixture into the preheated die.
- 1 20. A production method according to Claim 13, wherein said compacting
2 includes applying a die lubricant to a die, and then, compressing the metal
3 powder mixture into the die.
- 1 21. A production method according to Claim 13, wherein the green
2 compact is sintered at a temperature of 1180°C or higher.
- 1 22. A production method according to Claim 13, further comprising
2 heat-treating the sintered compact.